

Nomenclatural and Taxonomic Notes on the Pteridophytes of Costa Rica, Panama, and Colombia, III

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ABSTRACT.—The new species *Hypolepis rubiginopilosula* and *Polypodium chirripoense* are described, the new combinations *Blechnum loxense* var. *stenophyllum*, *B. l'herminieri* subsp. *lehmannii*, *Diplazium ribae*, *Lastreopsis squamifera*, *Lomariopsis salicifolia*, *Pteridium caudatum* subsp. *arachnoideum*, and *Tectaria* × *micheleriana* are made, and three lectotypes are chosen for tropical American ferns.

The purpose of this paper and those that preceded it (Lellinger 1977a, 1977b, 1985) is to publish lectotypes, new combinations, and new species of pteridophytes that for the most part will be included in the forthcoming volume of my Ferns and Fern-allies of Costa Rica, Panama, and the Chocó. All Morton photos were seen at US.

Aspidium macrophyllum var. *pittieri* Christ in Dur. & Pitt., Bull Soc. Roy. Bot. Belgique 35, Mém. 208. 1896.—LECTOTYPE: Tsâki, Talamanca, Pcia. Limón, Costa Rica, ca. 200 m, *Tonduz 9483* (US!; isoelectotypes BR, CR!), designated here. The other syntypes are: Río Yurquin [Zhorkin], Pcia. Limón, 50 m, *Pittier 8523* (BR) and Puerto Viejo, Pcia. Heredia, Costa Rica, *Biolley 6924* (BR; isosytype CR!).

The name is a synonym of *Tectaria incisa* Cav.

Asplenium trianae Mett. in Tr. & Planch., Ann. Sci. Nat. Bot. V, 2:233. 1864.—LECTOTYPE: “Prov. de Barbacoas, via de Tuquerres,” Depto. Nariño, Colombia, 900 m, *Triana* in 1853 (BM–Morton photo 7049; isoelectotype B), chosen here. The other syntype is: Ingara, Depto. Chocó, Colombia, 340 m, *Triana* (B).

Asplenium trianae is the basionym of *Diplazium trianae* (Mett. in Tr. & Planch.) C. Chr.

Blechnum l'herminieri subsp. *lehmannii* (Hieron.) Lellinger, *comb. nov.*

Blechnum lehmannii Hieron., Bot. Jahrb. Syst. 34:473. 1904.—TYPE: Río Timbiquí, Depto. Cauca, Colombia, 100–500 m, *Lehmann 8928* (B—Morton photo 10024; isotypes F!, K, US!).

This subspecies has sterile laminae that taper gradually and uniformly toward the base of the lamina. It has a cordilleran distribution from Costa Rica to Bolivia and Brazil. In contrast, *Blechnum l'herminieri* (Bory ex Kunze) Mett. subsp. *l'herminieri* has sterile laminae that are abruptly tapered above the base

to 1–7 pairs of auriculiform segments. It has a circum-Caribbean distribution from Mexico to Venezuela, Guyana, and the Antilles.

Blechnum loxense* var. *stenophyllum (Klotzsch) Lellinger, **comb. nov.**

Lomaria stenophylla Klotzsch, *Linnaea* 20:346. l 1847.—TYPE: Peru, *Dombey* (B–Morton photo 10092; isotype P–Morton photo 4399).

Lomaria squamulosa Desv., *Mém. Soc. Linn. Paris* 6:290. 1827.—TYPE: Peru, *Dombey* (B–Morton photo 10092; isotypes P–Morton photo 4399, US!).

This variety differs from the typical variety in having bicolorous stipe and rachis scales. It occurs from Colombia to Bolivia, whereas the typical variety ranges to Costa Rica and Venezuela. The epithet *stenophylla* has been more used than *squamulosa*, and so I have chosen to use the former at the varietal level.

Diplazium ribae (Pacheco & R. C. Moran), Lellinger, **comb. nov.**

Callipteris ribae Pacheco & R. C. Moran, *Brittonia* 51:375, f. 21. 1999.—TYPE: El Llano–Carti Road 17.4 km from the Interamerican Highway, Com. S. Blas, Panama, 350 m, *deNevers, Herrera & González 3924* (MO; isotype UC!).

In my opinion, subdivision of the genus *Diplazium sensu lato* would best be delayed until more information about species that may be related to, but are not included in *Callipteris*, is at hand. A few other tropical American species and many Old World species of *Diplazium sensu lato* have some of the characters of *Callipteris*, and it is important that these species be dealt with in detail.

Hypolepis rubiginosopilosula Lellinger, **sp. nov.**

Rhizoma repens, 2(4?) mm in diam., leviter brunneopilosum. Stipites 30–45 cm longi spinosi ad basin rufobrunnei, distaliter pallide aurantiacobrunnei. Rachides sparse spinosae flavovirides, distaliter catenatopilosulae. Laminae lanceatae vel oblongo-lanceatae, 3-pinnato-pinnatifidae, usque ad 100 cm longae ca. 50 cm latae, ad basin pinnis lanceatis aequilateralibus, distaliter pinnis oblongis; costulis stramineis leviter catenatopilosulis, pilis articulatis leviter rufobrunneis; pinnulis secundariis vel segmentibus 4–7 mm latis oblongis ad apicem rotundatis chartaceis abaxialiter leviter glandulosis; venulis complanatis fuscis, hydathodis elongatis; soris ad apicem venarum in lobis demissis; indusiis 0.1(0.3) mm latis erosis sparse ciliatis.

TYPE: Vicinity of El General, Pcia. S. José, Costa Rica, 1160 m, *Skutch 2975* (US–2 sheets).

PARATYPES: **COSTA RICA:** Cartago: Muñeco, 1500–1500 m, *Standley & Torres 51203* (US); Heredia: Parque Nal. Braulio Carrillo betw the R. Peje and the headwaters of the R. Sardinal, Atlantic slope of V. Barba, 1200–1300 m, *Grayum 7820* (CR, MO, US); S. José: La Palma, 1459 m, *Tonduz 12529* (US).

PANAMA: Chriquí: Holcomb's Trail, 10 mi above Boquete, 1625–1650 m, Killip 5235 (US).

This species, which occurs in the Cordillera Central of Costa Rica and the Cordillera de Talamanca of Costa Rica and Panama at 1100–1700(2100) m elevation, has generally been called *H. rigescens* (Kunze) T. Moore. The type of that species is from Est. Bahia, Brazil; it is known to me only from Morton photo 16280 of an isotype in Firenze (FI). Based on frond outline and on location and elevation of the type, I believe *H. rigescens* to be the earliest name for a species probably confined to the lowland Brazilian coastal forest that has usually been called *H. mitis* Kunze ex Kuhn. (*Hypolepis stolonifera* Fée is another synonym). Therefore, I have provided a new epithet for the Central American–Andean material, which differs from the Brazilian material in being equally pilosulous on both surfaces and in having erose, obviously ciliate indusia, rather than in being glabrous adaxially and in having erose, eciliate indusia.

Apparently *H. rubiginosopilosula* is most closely related to *H. viscosa* (Karst.) Mett. in Tr. & Planch. The principal differences are that the latter has pilose, rather than sparsely pilosulous axes (both have catenate hairs) and lacks spines on the stipes, rachises, and costae. In Costa Rica, *H. viscosa* grows at 2100–2600 m elevation, entirely above the elevational range of *H. rubiginosopilosula*. The foregoing differences and differences in range (*H. viscosa* is known from Costa Rica to Venezuela and Ecuador) make it unlikely that specimens of *H. rubiginosopilosula* are merely variants of *H. viscosa*.

Lastreopsis squamifera (C. Chr.) Lellinger, *comb. nov.*

Dryopteris exculta var. *squamifera* C. Chr., Kongel. Danske Vidensk. Selsk. Skr., Naturvidensk. Afd. VIII, 6:96. 1920. SYNTYPES: Navarro, Pcia. Cartago, Wercklé 16741 (P), 16753 (P), and 16764 (P).

This species is distinct from *L. exculta* in its pinnae, which are twice as far apart as those of *L. exculta*, and in its narrowly lanceate, brown, subclathrate scales, which are unlike the linear, blackish, clathrate scales of *L. exculta*.

Lomariopsis salicifolia (Kunze) Lellinger, *comb. nov.*

Lomaria salicifolia Kunze, Linnaea 9:58. 1834.—TYPE: Yurimaguas, Depto. Loreto, Peru, Poeppig in Dec 1830 (LZ destroyed).

Lomariopsis fendleri D. C. Eaton, Mem. Amer. Acad. Arts N.S., 8:195. 1860.—TYPE: Venezuela, Fendler 335 (YU; isotypes K fragm NY!, MO!).

Despite a careful search by Dr. Bruno Wallnöfer, no isotype of Poeppig's specimen was found at W, which has the first set of Poeppig's collections. According to my notes, which may be in error, NY apparently had a fragment of the isotype, but Dr. Robbin Moran could not find at the present time.

Kunze compared his species to what is now called *Lomariopsis sorbifolia* (L.) Fée, a well known Antillean species. Although the characters he used to

distinguish *L. salicifolia* are mostly those of the genus, that makes it more certain that Kunze had a *Lomariopsis* at hand. The only other possibilities are *Blechnum*, which does not routinely climb up tree trunks, and *Stenochlaena*, which does look very much like *Lomariopsis*. The latter is a strictly Old World genus, and Poeppig never collected in the Old World.

Of the five species of *Lomariopsis* attributed to Peru by Moran (2000, p. 59), only *L. fendleri* D. C. Eaton has the frond and pinna dimensions and lamina shape approaching those of *L. sorbifolia*. The other Peruvian species are much larger plants whose laminae do not taper gradually at the base. Therefore, it is certain that Kunze's name is correctly applied to this species.

Nephrodium sodiroi Baker, J. Bot. Brit. For. 15:16. 1877.—LECTOTYPE: The type specimen, "Andes of Ecuador," *Sodiro* (K-Tryon photo US!), is a mixed collection. According to Tryon and Stolze (1991), the type consists of a sterile frond of *Bolbitis nicotianifolia* (Swartz) Alston, a rhizome and stipe of an unidentifiable species of Lomariopsidaceae, and a fertile, *Tectaria* pinna. I here designate as lectotype the sterile frond of *Bolbitis nicotianifolia*, which is the basis for all of Sodiro's description, except for the sori and indusia, which are taken from the *Tectaria* fragment. The name *Nephrodium sodiroi* thus becomes a synonym of *Bolbitis nicotianifolia*.

The name *Tectaria chimborazensis* (C. Chr.) C. Chr., which has an adequate type specimen, applies to the *Tectaria* fragment and other material of this species that had been called *Tectaria sodiroi* (Baker) Maxon.

Polypodium chirripoense Lellinger, *sp. nov.*

Plantae epiphyticae. Rhizoma late repens 3–4 mm diam., phyllopodiiis 4–12 mm longis, 0.3–2.5 cm distantibus, nigrum paleaceum, paleis lanceolatis peltatis appressis integris ca. 3–5 mm longis 1 mm latis ad marginem apicemque stramineis ad centrum atrobrunneis, marginibus apicibusque deciduis irregulariter erosis, pagina rhizomatis demum detecta. Stipites rachides laminaeque pilosulae vel pilosae, pilis 0.1–0.5 mm longis catenatis 3–6-cellulis, subhyalinis. Stipites (5)10–25 cm longi (0.8)1–2 mm lati exalati distaliter sulcati, ad basin atrobrunnei vel atrocastanei ad apicem brunnei, pilosi glabrescentes. Laminae anguste lanceolatae 13–32(45) cm longae (5)7–10 cm latae papyraceae ad basin obtusae pinnatae (pinnis basalaribus reductis 1.5–2.5(4) cm longis) ad apicem acutae vel acuminatae pinnatisectae vel pinnatifidae, pinnis segmentisque integris vel crenatis ad basin truncatis ad apicem attenuatis non falcatis leviter pilosulis (rachidibus pilosis), venulis (1)2(3)-furcatis; soris rotundis 0.75–1.5 mm diam. leviter supramedialibus 1-seriebus, sporangiis sparse pilosulis.

TYPE: 1 km NW of Villa Mills on Interamerican Highway, behind the hotel La Georgina, Pcia. Cartago, Costa Rica, 2900 m elevation, *Lellinger 853* (US; isotype CR).

PARATYPES: **Costa Rica:** Cartago: Vicinity of Millsville, Pan-American Highway ca. 3 km above Nivel, 3000–3300 m, *Holm & Iltis 604* (US; isoparatype GH). Cartago–San José: Upper slopes, western ridge of Cerros Cuericí, 3160 m, *Davidse 24696* (UC!; isoparatype MO); Cerros Cuericí, near the summit, 3200–3394 m, *Davidse 24783* (UC!; isoparatype MO). San José: Southwest slopes of Cerro Chirripó, along trail from Canaán to summit, near the cavern, 9800–10300 ft, *Lellinger & Evans 105* (US!; TENN!). Limón: Atlantic side of Cerro Chirripó, 10400–11000 ft, *Lellinger & Evans 164* (TENN!); Atlantic side of the Kamuk Massif, E of the main peak, 3000–3300 m, *Davidse & Herrera 29327* (MO!).

This species is closely related to *Polypodium ursipes* Moritz ex C. Chr., with which it has been confused. It differs from that species in having dark brown, pilose rather than mostly grayish, densely pilosulous rachises, round rather than elongate sori, and generally thinner rhizomes. Both species have basally tapering rather than truncate laminae and have similar rhizome scales. *Polypodium chirripoense* appears to be restricted to the central portion of the Cordillera de Talamanca and to grow at higher elevations (2900–3394 m) than does *P. ursipes*. It is mostly terrestrial, on fallen logs, or epipetric, but has been recorded as growing epiphytically, usually in mossy oak forests.

Pteridium caudatum* subsp. *arachnoideum (Kaulf.) Lellinger, **comb. nov.**

Pteris arachnoidea Kaulf., Enum. Fil. 190. 1824.—Type: Brazil, Chamisso (LE–Tryon photo GH).

Because of differences in ploidy, totally or largely distinct ranges, and consistent differences in morphology, the specimens of this genus fall into at least two species, in the New World certainly into *P. aquilinum* (L.) Kuhn and *P. caudatum* (L.) Maxon. The major taxa within each of these species are, for similar reasons, logically treated as subspecies, although some of them may eventually prove to be independent species, based on cytological or other evidence.

Tectaria* × *michleriana (D. C. Eaton) Lellinger, **comb. nov.**

Lindsaea michleriana D. C. Eaton, Mem. Amer. Acad., N.S. 8:213. 1860.—Type: Colombia, Depto. Chocó, Near the falls of the Río Truando, *Schott 8* (YU photo and fragm US!; isotype NY!).

This is the hybrid of *T. incisa* Cav. × *T. panamensis* (Hook.) Tryon & A. Tryon. The latter species was formerly known as *Dictyoxiphium panamense* Hook.

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